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ANNCR: THE VOICE OF AMERICA PRESENTS: SCIENCE NOTEBOOK. A SUMMARY OF EVENTS IN SCIENCE, MEDICINE AND TECHNOLOGY. EACH WEEK AT THIS TIME, WE BRING YOU REPORTS ON DEVELOPMENTS THAT MAY AFFECT OUR DAILY LIVES. WITH THE FIRST STORY, HERE IS YOUR SCIENCE EDITOR \_\_\_\_\_:

(WORSE WEATHER AHEAD -- 3-2644 -- DOSA)

EDITOR: METEOROLOGISTS SAY THAT WASHINGTON AND ITS VICINITY WILL HAVE A Milder THAN USUAL WINTER THIS YEAR. BUT THE LONG-RANGE FORECAST FOR THE WORLD IS THAT OUR DESCENDANTS WILL FACE FAR WORSE WEATHER IN THE FUTURE. HERE IS \_\_\_\_\_ WITH DAY-AFTER-TOMORROW'S WEATHER REPORT.

VOICE: OREGON STATE UNIVERSITY OCEAN SCIENTIST JORN THIEDE, LOOKING HUNDREDS, OR THOUSANDS OF YEARS INTO THE FUTURE, SAYS THE PRESENT "WARM CYCLE" APPEARS TO BE SLIPPING AWAY AND THE WORLD IS HEADED TOWARD ANOTHER "LITTLE ICE AGE."

DOCTOR THIEDE BASES HIS PREDICTION ON FINDINGS OF A PROJECT CALLED "CLIMATE: LONG RANGE MAPPING AND PREDICTION" OR "CLIMAP" FOR SHORT. SPONSORED BY THE U-S NATIONAL SCIENCE FOUNDATION, FIVE AMERICAN UNIVERSITIES, AS WELL AS INSTITUTIONS IN ENGLAND, GERMANY, THE NETHERLANDS, FRANCE, IRELAND, DENMARK, SWITZERLAND AND NORWAY ARE PARTICIPATING IN THE CLIMAP PROJECT.

THE SCIENTISTS HAVE LARGELY COMPLETED A CLIMAP OF THE WORLD AS IT EXISTED DURING THE LAST GREAT ICE AGE, SOME EIGHTEEN-

THOUSAND YEARS AGO. NEXT, THEY WILL FOCUS THEIR ATTENTION ON A MAJOR WARMING PERIOD THAT TOOK PLACE ABOUT ONE-HUNDRED-TWENTY-THOUSAND YEARS AGO.

PROFESSOR THIEDE SAYS, THE CLIMAPS ARE BASED ON THE STUDY OF CORES TAKEN FROM OCEAN FLOOR SEDIMENTS WHICH CONTAIN THE ONLY GLOBAL RECORD OF ANCIENT CLIMATE. STUDIES BASED ON ICE CORES, TREE RINGS, LAKE SEDIMENTS AND SIMILAR MATERIALS, ARE GEOGRAPHICALLY RESTRICTED. THEY REFLECT PAST CONDITIONS ONLY WITHIN A RELATIVELY CONFINED REGION.

EACH OF THE FIVE AMERICAN UNIVERSITIES PARTICIPATING IN THE CLIMAP PROJECT IS RESPONSIBLE FOR STUDYING A PARTICULAR PART OF THE GLOBE, INCLUDING THE SECURING OF OCEAN FLOOR SEDIMENT CORES WHOSE LAYERS TELL THE STORY OF THE PAST. THE MICROSCOPIC FOSSILS AND VARIOUS CHEMICALS FOUND IN THOSE LAYERS GIVE INSIGHT INTO THE WORLDWIDE DISTRIBUTION OF FLORA AND FAUNA, OCEAN TEMPERATURES, CURRENTS, SALT CONTENT, AND EVEN WINDS THAT CARRIED THE SOIL PARTICLES OUT OVER THE OCEANS. TO THE TRAINED EYE AND MIND, THESE ARE THE CLUES TO THE SHIFTS AND FLUCTUATIONS THAT WE MUST EXPECT IN THE CLIMATE OF THE FUTURE.

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(HEART ATTACKS AND PROCRASTINATION -- 3-2644--RICHARDS)

EDITOR: MANY HEART ATTACK PATIENTS DIE SIMPLY BECAUSE THEY DO NOT SEEK HELP IN TIME. A UNIVERSITY OF MICHIGAN HEART SPECIALIST RECENTLY TOLD A GROUP OF DOCTORS THAT DEATH STATISTICS FOR HEART ATTACKS WILL NOT IMPROVE UNTIL PHYSICIANS BETTER EDUCATE THEIR PATIENTS.

\_\_\_\_\_ HAS THE REPORT.

VOICE: THERE ARE MANY SYMPTOMS ASSOCIATED WITH HEART ATTACK. THESE INCLUDE FATIGUE OR WEAKNESS, SHORTNESS OF BREATH, AND CHEST PAIN. THEY ALSO INCLUDE EMOTIONAL CHANGE, LOSS OF APPETITE AND NAUSEA, ARM PAIN DIZZINESS AND ANKLE SWELLING.

THE FIRST THING A PATIENT SHOULD DO WHEN HE NOTICES ANY SUCH SYMPTOM IS TO PROCEED TO THE NEAREST HOSPITAL OR EMERGENCY ROOM. THIS IS BECAUSE ABOUT HALF OF ALL HEART ATTACK PATIENTS DIE WITHIN THE FIRST ONE-AND-A-HALF HOURS AFTER SYMPTOMS ARE NOTICED. ONE OUT OF FIVE DIE INSTANTLY.

DOCTOR LEON OSTRANDER, A UNIVERSITY OF MICHIGAN HEART SPECIALIST, HAS MADE A STATISTICAL STUDY OF DEATHS CAUSED BY HEART ATTACK. HE TOLD A GROUP OF PHYSICIANS THAT MANY PATIENTS KNOW OR SUSPECT THAT THEY HAVE HEART TROUBLE, BUT FAIL TO SEEK INSTANT HELP AND DIE BEFORE A DOCTOR, NURSE, AMBULANCE DRIVER OR OTHER PARAMEDICAL PERSON CAN HELP THEM.

DOCTOR OSTRANDER SAYS THAT DELAY USUALLY RANGES FROM TWO TO FOUR HOURS. THE GREATEST PART OF THIS DELAY IS DUE TO THE PATIENT'S INDECISION. PATIENTS ARE CONCERNED ABOUT "BEING A BOTHER," HE SAYS. MOST ASK ADVICE FROM A FRIEND OR RELATIVE AND THEN LIE DOWN FOR A WHILE TO REST. BUT LYING DOWN DOES NOT HELP A HEART ATTACK PATIENT WHO SHOULD BE RECEIVING HELP. AND THE PATIENT DIES AS A RESULT OF HIS PROCRASTINATION.

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PAGE FOUR MISSING FROM MICROFILM

"WE ACTUALLY BUY A LOT MORE THAN MERELY GETTING THESE MOTIONS INTO SIGNALS, BECAUSE WHAT WE DO NOW WITH THIS SYSTEM IS TO MONITOR THE DYNAMICS OF THE WRITING, RATHER THAN THE STATIC. TODAY, SIGNATURE VERIFICATION USUALLY MEANS THAT YOU LOOK AT SOMEONE'S STATIC IMAGE. THEY WROTE IT ALREADY, MAYBE A MONTH AGO, OR SOMETIME IN THE PAST. WHAT WE ARE MONITORING HERE IS THE MOTIONS AND THE FORCES, WHICH MEANS THAT EVEN IF YOU COPIED SOMEONE'S STATIC SIGNATURE WITH A MACHINE PRECISION, IT WOULD NOT DO YOU ANY GOOD, UNLESS YOU HAVE MATCHED ALL THE DYNAMIC FORCES."

VOICE: DOCTOR CRANE SAYS THAT IN DESIGNING THIS FORGER-PROOF PEN, THE STANFORD RESEARCH INSTITUTE SCIENTISTS HAVE TAKEN INTO ACCOUNT THE FACT THAT NOBODY WRITES HIS NAME EXACTLY THE SAME WAY EACH TIME. THE COMPUTER WHICH ANALYZES THE SIGNATURE ALLOWS FOR SUCH VARIATIONS, YET IT RETAINS THE ABILITY TO DISTINGUISH BETWEEN A GENUINE SIGNATURE AND A FORGERY.

THE DEVELOPERS OF THE NEW DEVICE FORSEE WIDE-RANGING APPLICATIONS FOR IT. AT FIRST, IT IS LIKELY TO BE USED IN CONNECTION WITH COMPUTERS. LATER, AS THE TECHNIQUE IS FURTHER REFINED, THE FORGER-PROOF PEN MAY TAKE THE PLACE OF CREDIT CARDS. THE PURCHASER WOULD SIMPLY SIGN HIS NAME AND THE COMPUTER WOULD KNOW INSTANTLY WHETHER HIS CREDIT RATING IS GOOD.

ACCORDING TO DOCTOR CRANE, WIDESPREAD USE OF THE FORGER-PROOF PEN MAY DEPEND ON WHAT HE CALLS ITS "PSYCHOLOGICAL ACCEPTABILITY..."

TAPE: CUT TWO -- CRANE

"DIFFERENT SOCIETIES HAVE DIFFERENT FEELINGS, OR DEVELOP DIFFERENTLY OF WHAT IS AND WHAT IS NOT PSYCHOLOGICALLY ACCEPTABLE. I UNDERSTAND THERE ARE SOME SOCIETIES, FOR EXAMPLE -- I THINK IT'S ENGLAND -- WHERE PEOPLE DO NOT LIKE TO HAVE THEIR PHOTOGRAPHS ON DOCUMENTS, WHILE IN AMERICA WE HAVE OUR PICTURES ON ALL KINDS OF DOCUMENTS AND

THINK NOTHING OF IT. SO, WHAT IS PSYCHOLOGICALLY ACCEPTABLE IN ONE SOCIETY, MIGHT NOT BE IN ANOTHER. SIGNATURE IN THE WESTERN WORLD IS PRETTY PSYCHOLOGICALLY ACCEPTED."

VOICE: DOCTOR HEWITT CRANE, OF THE STANFORD RESEARCH INSTITUTE, ONE OF THE DEVELOPERS OF THE FORGER-PROOF PEN.

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("CHARLIE" RETIRES -- 3-2644 -- RICHARDS)

EDITOR: PROBABLY NO OTHER AIRPLANE IN THE WORLD HAS DONE AS MUCH AS A DEE-CEE-SIX NAMED CHARLIE TO PROMOTE SCIENTIFIC UNDERSTANDING OF THE ATMOSPHERE AND OCEANS. BUT NOW, THE PLANE IS RETIRING AS THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION'S MOST RESPECTED HURRICANE HUNTER. HERE IS \_\_\_\_\_ TO WISH CHARLIE HAPPY RETIREMENT.

VOICE: RESEARCH AIRCRAFT ARE USED TO DETECT AND ANALYZE HURRICANES. THE STORMS ARE FIRST DETECTED BY WEATHER SATELLITES, BUT THEN THE AIRPLANES TAKE OVER UNTIL THE STORMS CAN BE PICKED UP BY COASTAL RADAR.

CHARLIE, A DEE-CEE-SIX, HAS FLOWN FOR SIXTEEN YEARS FOR THE U-S COMMERCE DEPARTMENT'S ENVIRONMENTAL RESEARCH LABORATORIES. THE PLANE HAS TRAVELED MORE THAN FIFTY-SIX HUNDRED HOURS AND NEARLY TWO-MILLION KILOMETERS ON SUCH FLIGHTS.

CHARLIE'S FLIGHTS HAVE RANGED FROM CHASING MONSOONS OVER THE INDIAN OCEAN TO HURRICANES IN THE TROPICAL ATLANTIC, TO HAIL-MAKING CLOUDS IN THE MIDWESTERN UNITED STATES.

CHARLIE IS THE OLDEST OF THE AIRBORNE HURRICANE-WATCHING FLEET BASED AT MIAMI INTERNATIONAL AIRPORT. AND CHARLIE IS HANGING UP HIS WINGS.

IF PLANES COULD TALK, CHARLIE WOULD HAVE SOME GOOD STORIES TO TELL.

THERE WAS THE TIME IN 1966 WHEN CHARLIE WAS TRACKING HURRICANE INEZ AND HAD TO WORK HIS WAY THROUGH WINDS BLOWING AT MORE THAN THREE-HUNDRED-KILOMETERS AN HOUR. AND THEN, IN 1975, AN ELECTRICAL FAILURE CAUSED THE LOSS OF MOST OF CHARLIE'S INSTRUMENTS WHILE THE PLANE WAS FLYING THROUGH HURRICANE GLADYS. BUT, DESPITE EXTREME TURBULENCE, THE CREW WAS ABLE TO FIND THE EYE OF THE STORM.

CHARLIE OFTEN FLEW MISSIONS LOW OVER THE OCEAN. DURING ONE EXPERIMENT, CHARLIE FLEW SO LOW THAT HE MADE WAVES IN THE WATER BELOW. BECAUSE THE PLANE WAS DECORATED WITH A GOLD STRIPE, AT THAT TIME SOMEBODY NAMED IT "THE YELLOW SUBMARINE."

SINCE 1959, CHARLIE HAS MADE THREE HUNDRED TWENTY-ONE PENETRATIONS THROUGH FORTY-TWO HURRICANES. BUT NOW, CHARLIE IS RETIRING, AND OTHER PLANES WILL CARRY ON HIS WORK.

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(HELICOPTERS TO THE RESCUE -- 3-2644 -- DOSA)

EDITOR: DURING A FLASH FLOOD THAT HIT AUSTIN, TEXAS, LAST SPRING, A SINGLE HELICOPTER RESCUED EIGHTY PEOPLE FROM THEIR ROOFTOPS WITHIN A TWO-HOUR PERIOD. HERE IS \_\_\_\_\_ WITH

A LOOK AT THE INCREASING USE OF HELICOPTERS IN RESCUE OPERATIONS.

VOICE: PEOPLE DRIVING TO OR FROM WORK ON CROWDED CITY HIGHWAYS OFTEN SEE A HELICOPTER FLYING, OR CIRCLING OVERHEAD. IF THERE IS AN ACCIDENT, OR SOME OTHER OBSTRUCTION AHEAD, THE AUTOMOBILE DRIVER WILL HEAR ABOUT IT ON HIS CAR RADIO, IN A REPORT BROADCAST DIRECT FROM THE HELICOPTER. AND IF THE TRAFFIC IS TOO DENSE FOR AN AMBULANCE TO REACH THE ACCIDENT VICTIM, THE HELICOPTER WILL LAND AND DELIVER THE INJURED WITHIN MINUTES TO THE NEAREST HOSPITAL.

LAW ENFORCEMENT AGENCIES IN VARIOUS PARTS OF THE UNITED STATES USE WELL OVER SIX-HUNDRED AIRCRAFT AND TWO-THIRDS OF THEM ARE HELICOPTERS. THE NOISY, UNGAINLY FLYING MACHINE HAS BECOME A COMMON SIGHT, PATROLLING HIGHWAYS, KEEPING AN EYE ON WOULD-BE CRIMINALS AND, MOST IMPORTANTLY, PROVIDING INSTANT RESCUE SERVICE.

ONE OF THE THREE HELICOPTERS OPERATED BY THE WASHINGTON POLICE IS EQUIPPED WITH PONTOONS. IN THE FIRST NINE MONTHS OF ITS OPERATION, THIS SINGLE AIRCRAFT RESCUED FOUR-HUNDRED-FORTY-SIX PERSONS FROM THE POTOMAC AND ANACOSTIA RIVERS WHICH FLOW THROUGH THE NATION'S CAPITAL. SOME OF THESE PEOPLE WERE STRANDED IN THEIR BOATS WHILE ON A SUNDAY OUTING, OTHERS HAD FALLEN INTO THE RIVER AND COULD NOT SWIM TO THE SHORE.



IN THE STATE OF MARYLAND, HELICOPTERS ARE STANDING-BY AT STRATEGIC LOCATIONS, AROUND THE CLOCK, TO RUSH FIRST AID TO ACCIDENT VICTIMS AND FLY THEM TO THE HOSPITALS. EN ROUTE TO THE HOSPITAL, THE PILOT CALLS AHEAD BY RADIO, SUGGESTING THE KIND OF CARE THE PATIENT MIGHT NEED. BY THE TIME THE HELICOPTER LANDS IN FRONT OR ON THE ROOF OF THE HOSPITAL, DOCTORS CAN BE WAITING WITH THE OPERATING ROOM ALL SET FOR EMERGENCY SURGERY.

IN LOS ANGELES, A RETIRED POLICE PILOT NOW FLYS A HELICOPTER TO PROVIDE TRAFFIC REPORTS FOR A RADIO STATION. IN BETWEEN FLIGHTS, HE LANDS AT SCHOOLS AND LECTURES THE CHILDREN ABOUT PEDESTRIAN AND BICYCLE SAFETY. USUALLY, THE CHILDREN ARE MORE INTERESTED IN HIS HELICOPTER, BUT THEY WILL ALSO REMEMBER TO WATCH OUT FOR CARS WHEN THEY VENTURE OUT ON THE STREET.

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